



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Andrew T.H. Lin, Edward W-Y Shih, Richard Yeh

U.S. Serial No: 10/006,066

Group Art Unit: 2834

Filed: 06 December 2001

Examiner: Karl I. Tamal

Title: "METHOD AND SYSTEM FOR SECURING AND CONTROLLING  
AN ELECTRO-STATICALLY DRIVEN MICRO-MIRROR"

Assistant Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Election Of Claims

Dear Sir:

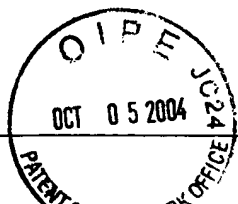
In response to receipt of a restriction requirement for the patent application identified above, the Applicants herewith cancel claims 15-36 and elect to proceed with prosecution of claims 1-14.

Respectfully Submitted,

Date: 27 October 2003

John Schipper

Patent representative for Applicants



# Notice of Allowability

Application No.

10/006,066

Examiner

Tamai IE Karl

Applicant(s)

LIN ET AL.

Art Unit

2834

*AK*

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/26/2004.
2. ☒ The allowed claim(s) is/are 1-8,10,12-14 and 37-44.
3. ☒ The drawings filed on 26 February 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 12/10/03.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

Tamai IE Karl  
Primary Examiner  
Art Unit: 2834

### **Reason for Allowance**

1. The following is an examiner's statement of reasons for allowance: the prior art does not teach an electrostatic actuated micromirror having three or more supporting springs at spaced apart locations to provide a restoring force for at least two degrees of freedom of movement for the micromirror. The spring connections being spaced apart to form a conceptual polygon, where the springs maintain a length to thickness ratio to operate the springs in a tensile mode. The electrostatic actuator having three or more spaced apart and independently controlled driving electrodes and the micro mirror having a frame including dielectric material positioned close to at least one edge of the micromirror and positioned between the first material layer which is the mirror layer and a second material layer with contains the springs. The prior art does not teach an electrostatic actuated micromirror having three or more supporting springs at spaced apart locations to provide a restoring force for at least two degrees of freedom of movement for the micromirror. The spring connections being spaced apart to form a conceptual polygon, where the springs maintain a length to thickness ratio to operate the springs in a tensile mode. The electrostatic actuator having three or more spaced apart and independently controlled driving electrodes, with one or more neutral electrodes adjacent the mirror with the same electric potential as the mirror.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Drawings***

2. The drawings were received on 2/26/2004. These drawings are approved.
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036.

The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (703) 872 - 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karl I Tamai  
PRIMARY PATENT EXAMINER  
April 23, 2004



KARL TAMAI  
PRIMARY EXAMINER